The psychophysical properties of the defect and intact visual field in patients with post-chiasmatic lesions, an exploratory study.

Published: 08-09-2016
Last updated: 14-04-2024

To study changes of the visual field due to post-chiasmatic lesions and their relations with patient experiences.

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Neurological disorders of the eye
Study type	Observational non invasive

Summary

ID

NL-OMON43283

Source
ToetsingOnline

Brief title
Properties of the visual field in patients with post-chiasmatic lesions.

Condition

- Neurological disorders of the eye

Synonym
cortical blindness, Hemianopia

Research involving
Human

Sponsors and support

Primary sponsor: Radboud Universitair Medisch Centrum
Source(s) of monetary or material Support: Ministerie van OC&W,Marie-Curie

Fellowship;HealthPAC

Intervention

Keyword: Intact visual field, Post-chiasmatic lesions, Psychophysical properties, Visual field defects

Outcome measures

Primary outcome

- Patient experiences: results on visual quality of life questionnaires

- Ophthalmological: result of non-invasive ophthalmological exam

- Psychophysical: performance on computer tasks (UFOV, Gabor detection,

Visual motion detection taak en scene recognition taak.)

Secondary outcome

Eye movement measured non-invasively with a video-based eye-tracker.

Study description

Background summary

Visual information processing is crucially important in daily life. This becomes even more obvious when part of the visual field is damaged. Visual field defects can occur as a result of post-chiasmatic brain damage for example after vascular accidents, cranio-cerebral trauma, hypoxia or infections. These patients, also called hemianopia patients, experience problems in daily life for example in reading, visual navigation (during cycling and driving) and visual identification (recognizing people and objects).

It is generally assumed that the *intact* visual field, i.e. the visual field that does not differ from normal as measured by standard perimetry, is healthy. Nevertheless, patients often complain about this part of the field as well. Patients therefore seem to experience functional problems that cannot be accounted for by light-sensitivity at these locations. Previous research has shown that this field is indeed not completely normal. Differences were found in contrast-sensitivity, response times and contour integration. Furthermore, hemianopia patients were shown to experience more difficulty in search tasks, also in the intact field.

Similarly, it is generally assumed that patients cannot use their blind field functionally anymore. Previous studies have shown that this part of the visual field can still process visual stimuli although it may be unconsciously. This phenomenon is called *blind-sight* and shows that the blind field can still be functional to a certain extent.

The current study will map the properties of both the intact visual field as well as the defect visual field using psychophysical measurements. We will mainly focus on temporal and spatial properties and their relations with patient experiences.

Study objective

To study changes of the visual field due to post-chiasmatic lesions and their relations with patient experiences.

Study design

Exploratory, Observational study where patients are compared to healthy adults.

Study burden and risks

We will measure neurological processes indirectly through non-invasive psychophysical measurements. These measurements will take maximally 2 hours each. All measures will be done in one day including breaks to ease the burden for patients. We expect that the healthy subjects will need less time to complete the study. The measures can be categorized into three categories: questionnaires, psychophysics and non-invasive ophthalmological examination. There are no risks involved in any of these measurements.

Patients do not immediately benefit when participating in this study. It does however offer an opportunity to study (1) the neurophysiological properties of the intact and defective visual field and (2) its relations with patient experiences. It will therefore contribute to understanding consequences of post-chiasmatic lesions.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

Patients:
- At least 18 years old.
- Patients with visual field defects as consequence of post-chiasmatic lesions.
- Normal or corrected-to-normal vision. ;Controls:
- At least 18 years old.
- Normal or corrected-to-normal vision.

Exclusion criteria

Patients:
* Presence of visual neglect (tested with character line bisection).
* Self-reported presence of other neurological, psychiatric or ocular impairments that might influence attention or the visual system.
Controls:
* Self-reported presence of neurological, psychiatric or ocular impairments that might influence attention or the visual system.

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)

Primary purpose: Basic science

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	12-12-2016
Enrollment:	50
Type:	Actual

Ethics review

Approved WMO

Date:	08-09-2016
Application type:	First submission
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL58053.091.16

Study results

Date completed:	01-01-2019
Actual enrolment:	38